

securing said hold down to said substrate during said reflow process, wherein said hold down is manufactured to secure to said substrate subsequent to said securing of said contact, and wherein said hold down is adapted to limit flattening of said contact during said reflow process.

REMARKS

Entry of this response and reconsideration and allowance of the above-identified patent application is respectfully requested. Claims 15-19 and 42-46 were rejected in the office action. Independent claims 15 and 42 have been amended. Upon entry of this response, claims 15-19 and 42-46 will be pending. No new matter has been added and no additional prior art searches are required by the present amendments.

Claims 15-19 and 42-46 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over all of the following references: (1) U.S. Patent No. 5,490,040 to Gaudenzi *et al.* ("Gaudenzi"); (2) U.S. Patent No. 5,772,451 to Dozier II *et al.* ("Dozier"); (3) U.S. Patent No. 4,878,611 to LoVasco *et al.* ("LoVasco"); and (4) Japan Patent No. 2-28990 to Nakane ("Nakane"). Applicants respectfully disagree.

As previously discussed, independent claim 15 is directed to a method of mounting an electrical connector to a substrate. Briefly, the inventive method secures a contact to a pad on a substrate during a reflow process. The inventive method also places a hold down into a hole in the substrate so as to permit the contact to center on the pad upon mounting to the substrate without contacting another pad on the substrate. As now recited in independent

claim 15 and independent claim 42, the hold down is manufactured to secure to the substrate subsequent to the securing of the contact.

First, the office action suggests that Gaudenzi teaches that "due to large size of hole 62 the contact 56 is able to self center on a pad on pcb 60." With all due respect, this simply misses the point. The hold down in the claimed invention is sized not only to allow the contact to self-center on the substrate, but also the hold down is sized to do so without allowing the contact to flow into another pad on the substrate. As indicated by the office action, Gaudenzi and all of the other references simply describe a hole that is large enough to receive a pin. Quite simply, there is no teaching in any of the cited references of a hold down, as in the present invention, that is sized not only to fit within a hole but also to do so without allowing a contact to flow onto another undesired substrate pad.

Second, as applicants have previously discussed, the present invention accomplishes the securing of the contact and the hold down to the substrate during the same reflow process (i.e., a single pass through the reflow oven). The office action responds to this distinction by citing to LoVasco and Nakane for the proposition that "reflow is standard." Certainly, applicants recognize that reflow is a standard process. However, the Examiner is respectfully requested to recognize that the neither of the teachings of LoVasco nor Nakane even come close to suggesting the aspect of the present invention of a hold down that is manufactured to fuse to the substrate after the contact fuses to the substrate, and yet during the same reflow process. Simply citing to Nakane because multiple "pins 2 are soldered to the corresponding wiring patterns 6 . . . through a reflow" ignores the fact that the hold down is made to fuse to

the substrate after the contact fuses to the substrate. There is simply no teaching in LoVasco, Nakane or any of the other references to this feature of the claimed invention.

Third, the office action suggests that “[i]f application post 525 would cool more slowly than the solder balls (page 11) Gaudenzi post 58 should perform similarly.” With all due respect to this contention, it is improper to use the present invention to create implications regarding the teachings of Gaudenzi. It is the prior art and not the present invention that “must provide a motivation or reason for the worker in the art, *without the benefit of [the applicants’] specification*, to make the necessary changes in the reference device.” *M.P.E.P. § 2144.04* (citing *Ex parte Chicago Rawhide Manufacturing Co.*, 223 U.S.P.Q. 351, 353 (Bd. Pat. App. & Inter. 1984) (emphasis added)). Here, applicants respectfully assert that the office action is using the benefit of the present invention to create a teaching that does not appear in Gaudenzi or any of the other references.

Finally, the office action notes that the “‘subsequent to’ method limitation does not clearly define structural features of the product.” Applicants have amended the present invention to recite that the hold down is manufactured to secure to the substrate subsequent to the securing of the contact. Therefore, applicants have amended the claims per the Examiner’s suggestion and have not raised a new issue.


Accordingly, because neither Gaudenzi, Dozier, LoVasco nor Nakane teach or suggest the present invention, applicants respectfully request withdrawal of the rejection of claims 15-19 and 42-46 under 35 U.S.C. § 103 (a) over all of those references.

CONCLUSION

In view of the foregoing, applicants respectfully submit that the present application is in condition for allowance. Reconsideration of the application and an early Notice of Allowance are respectfully requested. In the event that the Examiner cannot allow the present application for any reason, the Examiner is encouraged to contact the undersigned attorney, Vincent J. Roccia at (215) 564-8946, to discuss resolution of any remaining issues.

Respectfully submitted,

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Marked up versions of claims 15 and 42, which are amended herein, showing all of the changes relative to the previous version of each.

15. A method of mounting an electrical connector to a substrate, comprising:
providing an electrical connector having a contact and a hold down;

providing a substrate having a pad;
securing said contact to said pad on said substrate during a reflow
process;

placing said hold down into a hole in said substrate so as to permit said
contact to center on said pad upon mounting to the substrate without contacting another pad
on the substrate, wherein said hold down is adapted to retain said housing a distance from a
surface of the substrate; and

securing said hold down to said substrate during said reflow process,
wherein said hold down is manufactured to secure to said substrate subsequent to said
securing of said contact, wherein said hold down is adapted to limit flattening of said contact
during said reflow process.

42. A connector/substrate combination manufactured by the following steps:
providing an electrical connector having a contact and a hold down;

providing a substrate having a pad;
securing said contact to said pad on said substrate during a reflow
process;

placing said hold down into a hole in said substrate so as to permit said
contact to center on said pad upon mounting to the substrate without contacting another pad
on the substrate, wherein said hold down is adapted to retain said housing a distance from a
surface of the substrate; and

securing said hold down to said substrate during said reflow process,
wherein said hold down is manufactured to secure to said substrate subsequent to said

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securing of said contact, and wherein said hold down is adapted to limit flattening of said contact during said reflow process.